

AMENDMENTS

Listing of Claims:

The following listing of claims replaces all previous listings or versions thereof:

1.-5. (canceled)

6. (currently amended) A method of measuring the amount of oxidative stress in an individual, comprising the steps of:

- (a) collecting hematopoietic tissue of interest from said individual;
- (b) measuring the amount of mitochondrial DNA damage in said tissue wherein such damage is indicative of oxidative stress in said individual of interest, wherein said mitochondrial DNA damage is correlated with a measurement selected from the group consisting of measurement of mitochondrial mRNA production, measurement of mitochondrial protein production, measurement of changes in mitochondrial oxidative phosphorylation and measurement of changes in mitochondrial ATP production;
- (c) determining the amount of DNA damage in a nuclear gene in said tissue of interest; and
- (d) comparing the amount of DNA damage per length of DNA between said mitochondrial DNA and said nuclear gene, wherein a greater amount of mitochondrial DNA damage per length of DNA than nuclear DNA damage per length of DNA is indicative of an increased amount of oxidative stress in said individual.

7. (currently amended) The method of claim 156, wherein said nuclear gene is selected from the group consisting of the β -globin locus, transcriptionally active genes, and transcriptionally inactive genes.
8. (currently amended) The method of claim 146, wherein said mitochondrial DNA damage and DNA damage to said nuclear gene is determined by quantitative PCR, wherein said DNA is treated with FAPY glycosylase prior to said PCR amplification for detection of 8-oxo-G lesion.
9. (currently amended) The method of claim 6, wherein increased amounts of oxidative stress are predictive of atherogenesis, hypertension, diabetes mellitis, hypercholesterolemia, cigarette smoking, degenerative diseases of aging and/or cancer.
- 10.-13. (canceled)
14. (new) The method of claim 6, wherein said mitochondrial DNA damage is measured by measuring the amount of DNA damage per length of mitochondrial DNA.
15. (new) The method of claim 14, wherein the DNA damage comprises one or more deletions, insertions or duplications.
16. (new) The method of claim 6, wherein said mitochondrial DNA damage is measured by measuring mitochondrial mRNA production.

17. (new) The method of claim 6, wherein said mitochondrial DNA damage is measured by measuring mitochondrial protein production.

18. (new) The method of claim 6, wherein said mitochondrial DNA damage is measured by measuring changes in mitochondrial oxidative phosphorylation.

19. (new) The method of claim 6, wherein said mitochondrial DNA damage is measured by measuring changes in mitochondrial ATP production.

20. (new) The method of claim 6, wherein said mitochondrial DNA damage is measured by measuring changes in mitochondrial redox state.

21. (new) The method of claim 14, further comprising determining the amount of DNA damage in a nuclear gene in said tissue of interest; and comparing the amount of DNA damage per length of DNA between said mitochondrial DNA and said nuclear gene, wherein a greater amount of mitochondrial DNA damage per length of DNA than nuclear DNA damage per length of DNA is indicative of an increased amount of oxidative stress in said individual.

22. (new) The method of claim 8, wherein said DNA is treated with FAPY glycosylase prior to said PCR amplification for detection of 8-oxo-G-lesion.

23. (new) The method of claim 6, wherein the hematopoietic cell is a white cell.